CLAIMS

1. An electromagnetic device comprising:

a plurality of adjoining sensor layers disposed adjacent to a media-facing surface,

a pair of electrically conductive layers disposed adjacent to said media-facing surface and adjoining at least one of said sensor layers,

wherein said electrically conductive layers are separated from each other by a first distance at a first location adjacent to said media-facing surface, and

said electrically conductive layers are separated from each other by a second distance at a second location within ten microns of said media-facing surface,

such that said second distance is at least twice said first distance.

2. The device of claim 1, wherein:

said second distance is at least four times said first distance.

3. The device of claim 1, wherein:

said first distance is less than one-half micron, and

said second distance is at least four microns.

4. The device of claim 1, wherein an area between said electrically conductive layers has a shape substantially matching a profile of a wineglass.

5. The device of claim 1, wherein said electrically conductive layers have a magnetic moment.

6. The device of claim 1, wherein:

at least one of said electrically conductive layers has an edge that is removed from said media-facing surface, and

said edge has a serpentine shape.

7. The device of claim 1, wherein:

said sensor layers have a first edge disposed adjacent to said media-facing surface and a second edge disposed distal to said media-facing surface,

said first distance is measured at a location closer to said media-facing surface than said second edge, and

said second distance is measured at a location further from said media-facing surface than said second edge.

8. The device of claim 1, wherein:

said sensor layers include a first layer separated from a second layer by a nonmagnetic layer,

said first layer has a magnetic moment that is variable in response to an applied magnetic field, and

said second layer has a magnetic moment that is fixed in response to said applied magnetic field.

9. The device of claim 1, wherein said electrically conductive layers are electrical leads.

10. An electromagnetic device comprising:

a solid body having a leading end separated from a trailing end in a lengthwise direction, a media-facing surface separated from a non-media-facing surface in a heightwise direction, and a pair of sides separated from each other in a widthwise direction,

a plurality of adjoining sensor layers extending adjacent to said media-facing surface,

a pair of electrically conductive leads disposed adjacent to said media-facing surface and separated from each other by a submicron track width, at least one of said leads having a height measured in said heightwise direction,

wherein said lead height measured at a first location that is distal to said track width is at least twice said lead height measured at a second location that is adjacent to said track width.

11. The device of claim 10, wherein said first electrically conductive lead is magnetic.

12. The device of claim 10, wherein:

wherein said lead height measured at said first location is at least four times said lead height measured at said second.

13. The device of claim 10, wherein:

said lead adjoins said sensor layers at said first location and said lead does not adjoin said sensor layers at said second location.

14. The device of claim 10, wherein an area between said leads is shaped like a profile of a wineglass.

15. The device of claim 10, wherein said lead layers have a magnetic moment.

16. The device of claim 10, wherein at least one of said lead layers has an edge that is removed from said media-facing surface and that has a serpentine shape.

17. An electromagnetic device comprising:

a plurality of adjoining active layers disposed over a substrate,

a mask disposed over said active layers, said mask having upper and lower mask layers, said upper layer having a first thickness and said lower layer having a second thickness,

said lower mask layer having a plurality of regions adjoining one of said active layers, with a void separating said regions,

said upper mask layer adjoining said regions and extending as a bridge over said void, said bridge having a length measured between said regions and a submicron width measured perpendicular to said length and to said first thickness.

18. A method of making an electromagnetic device, the method comprising:

forming a plurality of adjoining active layers,

forming a mask atop said active layers, said mask having an upper layer and a lower layer,

including forming said lower layer to include a plurality of regions adjoining said active layers, said regions separated by a void, and

including forming said upper layer to adjoin said plurality of regions and extend over said void,

depositing a metal onto said mask and adjacent to said mask, and

removing said mask and said metal disposed on said mask without removing said metal adjacent to said mask.

19. The method of claim 18, further comprising:

forming a middle layer of said mask, such that said lower layer has a greater removal rate than said middle layer, and said middle layer has a greater removal rate than said upper layer.

20. The method of claim 19, wherein said middle layer is made of an inorganic material.

21. The method of claim 18, wherein said upper layer is a positive photoresist.

22. The method of claim 18, wherein said upper layer is a negative photoresist.